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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,855	03/31/2004	Andrew D. Wilson	13768.810.72	5579

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EXAMINER	
HADIZONOOZ, BANAFSHEH	

ART UNIT	PAPER NUMBER
3715	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/813,855	WILSON, ANDREW D.	
	Examiner	Art Unit	
	Banafsheh Hadizonooz	3715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/06/2008,10/06/2008,09/10/2008,07/16/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

In response to the amendment filed on 11/07/2008, claims 1-21 are pending. Claims 22-26 have been cancelled. This office action is made **Final**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,2,9,11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. (US 2005/0226467) in view of Thieme et al. (US 2006/0056662) further in view of Biswas (US 7, 120,280).

Regarding claim 1, Hatano discloses a method for detecting a pattern object (e.g. biometric image) comprising detecting a physical property of the object (e.g. quality evaluation), computing sum of the set of template data values (see P.3, [0041]-[0042]), calculating a difference score between the stored data values and the input data values (e.g. quality evaluation) and determining whether the difference score is within a match threshold (See Fig.2, elements 203, 204). Hatano does not specifically disclose creating template of the patterned object and each template having data values representing a magnitude of the physical property. However, Thieme discloses encapsulating image's physical property data such as grayscale, dimension etc. and generating templates (See abstract and [0043]-[0044]). Therefore, it would have been obvious to one of

ordinary skill in the art to modify Hatano's invention to generate data values for all the spatially shifting templates as disclosed in Thieme's invention in order to design a system with a more accurate comparison result.

Hatano/Thieme do not specifically disclose the patterned object being placed in any arbitrary orientation or the template having quadrilateral bounding shape. Biswas discloses in his invention a method that allows placing an image on the display surface in any arbitrary orientation without affecting the template matching capability of the device (See Col.7, 13-33). Biswas further discloses quadrilateral shape of templates (See Fig.1). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the features of Biswas' invention into the system and method of Hatano/Thieme in order to design a system that is more efficient in template matching process.

Regarding claim 2, Hatano further discloses calculating the integral sum of input data and determining whether the sum the sum is within a certain threshold (See P. 3, [0041] and P.4, [0046]-0047]).

Regarding claims 9 and 20, Hatano disclose calculating the difference score for the images as a step in template matching process (See P.6, [0083]-[0085]).

Hatano/Thieme does not expressly disclose the difference score is calculated as a sum of absolute difference and a sum of squared difference. However, this is considered to be a matter of design choice.

Regarding claim 11, Hatano discloses a memory (e.g. storage unit) to carry out the steps of claim 1 (See Fig. 1, element 4-1).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. (US 2005/0226467) in view of Thieme et al. (US 2006/0056662) and further in view of Siegel et al. (US 2006/0034492).

Regarding claim 3, Hatano further discloses the template data value comprises pixel values (See P. 2, [0031]. Hatano/Thieme does not specifically disclose that physical property comprises light and that the pixel values indicate the intensity of light. However, Siegel discloses such in his invention (See P.2, [0033]). Therefore it would have been obvious to one of ordinary skill in the art to incorporate the features of Siegel's invention into the system and method of Hatano/Thieme in order to design a system that more effective image matching process.

Claims 4-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. (US 2005/0226467) in view of Thieme et al. (US 2006/0056662) and further in view of Biswas et al. (US 7,120,280).

Regarding claim 4, Hatano/Thieme discloses creating plurality of templates. Hatano/thieme does not expressly disclose creating a binary mask. However, Biswas discloses creating a binary mask comprising transformed template data values, a mask bounding region having quadrilateral shape (See Fig.1), performing the steps of claim 2 (See Fig.5). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the features of Biswas into the limitations of Hatano/Thieme's invention in order to design a system with a more effective image processing features.

Regarding claim 5, Biswas discloses generating templates, determining a distance between the first center associated with the mask bonding and a second

center (See Fig.3), and determining the redundancy threshold (See Col.3, 43-61and Fig.5).

Regarding claim 6, Biswas further discloses computing an integral image array, selecting from array elements corresponding to four corners of the quadrilateral template and computing an integral sum as a function of four array (See Col.3, 43-61, Col.5, 4 - Col.6, 9).

Regarding claims 7 and 8, Biswas further discloses a template matching process using a succession of surface coordinate locations (See Col.6, 26-44).

Regarding claim 10, Biswas discloses computing the statistical moment of the template data and the input and determining whether the data is within the threshold value (See Col.3, 43-61).

Claims 12-19 and 21-26 are rejected under 35 U.S.C 103(a) as being unpatentable over Siegel et al. (US 2006/0034492) in view of Biswas et al. (US 7,120, 280).

Regarding claims 12, 13, Siegel discloses an interactive display (e.g. scanner), a light source that directs the light toward the opposite side of the interactive display and through the display, light sensor and a processing unit wherein the processing unit is in charge of detecting the intensity of light (See P.2, [0033], P.8, [0077]), and creating a template of the patterned object and acquiring the input data values (see Fig.8). Siegel further discloses template data values representing the intensity of reflected light and acquiring inout data values from the interactive display surface with the light sensor (See P.3, [0038]-[0039]). Siegel does not specifically disclose computing sum of the set

of template data and calculating the difference score to determine whether or not the score falls within a threshold. However, Biswas discloses such in his invention (See Col.3, 43-61, Fig.5, element 70). Biswas further discloses the quadrilateral boundary region of the templates (See Fig.1) Therefore, it would have been obvious to one of ordinary skill in the art to incorporate the features of the Biswas invention into the limitations of the Siegel invention in order to design a system with a more effective template matching tool.

Regarding claim 14, biswas discloses that template data values comprise pixel values (See Fig.5, Col.4, 14-29).

Regarding claim 15, Biswas further discloses a mask bounding region that is used for quadrilateral template bounding (See Col.5, 4- Col.6, 25).

Regarding claim 16, Biswas discloses generating templates, determining a distance between the first center associated with the mask bonding and a second center (See Fig.3), and determining the redundancy threshold (See Col.3, 43-61and Fig.5).

Regarding claim 17, Biswas further discloses computing an integral image array, selecting from array elements corresponding to four corners of the quadrilateral template and computing an integral sum as a function of four array (See Col.3, 43-61, Col.5, 4 - Col.6, 9).

Regarding claim 18 and 19, Biswas further discloses computing an integral image array, selecting from array elements corresponding to four corners of the quadrilateral template and computing an integral sum as a function of four array (See

Col.3, 43-61, Col.5, 4 - Col.6, 9), and a template matching process using a succession of surface coordinate locations (See Col.6, 26-44).

Regarding claim 21, Biswas discloses computing the statistical moment of the template data and the input and determining whether the data is within the threshold value (See Col.3, 43-61).

Response to Arguments

Applicant's arguments filed 11/07/2008 have been fully considered but they are not persuasive.

Applicant argues that the prior art does not disclose the complete list of elements recited by claim 1. The examiner notes that the only element missing in the rejection of claim 1 is the arbitrary orientation of the patterned object placed on the display surface. The examiner refers the applicant to P.3, [0040] of Hatano, where the pixels from the patterned object are analyzed with respect to reference image for coincidence points, which implies the orientation of the patterned object does not matter and that the patterned object can be placed in arbitrary orientation. Biswas further discloses the same limitation in Col.7, 13-33).

The applicant further argues that claim 1 does not recite “calculating a difference score between the stored data values and the input data vales’. The examiner disagrees and refers the applicant to claim 1, part (e).

The applicant also argues that prior art does not disclose quadrilateral template bounding region having sides aligned with one of the region. The examiner refers the applicant to figure 1 in Biswas.

Applicant further argues that the prior art does not disclose "each template data value representing a magnitude of the physical property at a different one of plurality of surface coordinate locations within a bounding area encompassing the patterned object". The examiner notes that Thieme discloses encapsulating the physical property values of the images (See [0043]), and that considering that Hatano discloses comparing the images and evaluating the image qualities for spatially shifting images , it would have been obvious to one of ordinary skill to use data values for every shifted image to increase system's accuracy.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Banafsheh Hadizonooz whose telephone number is 571-272-1242. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xuan Thai can be reached on (571) 272- 7147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BH

/Cameron Saadat/
Primary Examiner, Art Unit 3715